WASHINGTON TIMES
29 March 1985

Secret coating could laser-proof spacecraft

By Walter Andrews
THE WASHINGTON TIMES

An advanced material has been developed that could shield U.S. spacecraft, satellites and nuclear missiles from Soviet laser beams in any space battle, according to the Defense Department's top scientist.

But if the secret graphite coating fell into the wrong hands, it could also be used to help the Soviets protect their own missiles from President Reagan's proposed "star wars" space-based defense system.

"The material is very promising for application to our own strategic [nuclear missile and space] systems to protect them against potential laser damage," said Robert Cooper, director of the Defense Advanced Research Projects Agency.

The new class of materials has "substantial capacity" — perhaps up to 100 times greater than typical aerospace materials — to protect missiles and spacecraft "against exceedingly capable laser systems," he said during testimony before the Research and Development Subcommittee of the House Armed Services Committee this week.

The Central Intelligence Agency has estimated that the Soviets could have a space-based laser capable of shooting at American satellites by 1988 and one capable of shooting at targets on the ground possibly by 1990.

DARPA is the Pentagon agency responsible for developing new technology for application by the military services to specific weapons systems. It has been largely responsible for keeping U.S. weapons well ahead technically of their foreign counterparts.

Opponents have criticized the administration's $33 billion Strategic Defense Initiative research effort on the grounds that it would be difficult if not impossible for a space-based laser to destroy an ascending missile in its early, vulnerable boost phase before its multiple warheads have been launched.

In reply, defenders of the "star wars" system have noted that the thin, metal skin of rockets could easily be burned through by high-energy, thermal lasers. Shielding the rockets with a thicker armor would make them too heavy to launch into space, the defenders argue.

Development of the new class of lightweight shielding materials would appear to introduce a new element to this argument, increasing the possibility of missiles as well as spacecraft and satellites being made impervious to laser destruction.

Asked about the possibility of the Soviets using such a material to thwart an American space-based defense system, Mr. Cooper replied: "I don't know what implementation it has for a Soviet [space or missile] system. I'm not sure they have the technology, or even could achieve it in the near term."

Lasers use beams of highly concentrated light to perform a wide variety of tasks: Carrying information, weapons guidance systems and burning targets by focusing extremely high energy on a small area. The Soviets have specialized in the development of thermal lasers.

The new American material "shows great promise and certainly could protect U.S. strategic systems from thermal lasers that we could design and develop today with the laser technology that we have," Mr. Cooper said.

"These materials should be highly effective at a modest weight penalty, perhaps 10 percent on the payload [the load boosted into space], either the payload on the spacecraft or the payload of a ballistic missile," the Pentagon scientist said.

The new materials "can withstand perhaps as much as an order of magnitude [10 times] or two [100 times] more energy deposited on it in the way of laser radiation than the typical aerospace material," Mr. Cooper said.